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Of Counsel

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY**

BROADCOM CORPORATION,	)	
	)	
Plaintiff,	)	Civil Action No. 05-3350 (MLC)
	)	
v.	)	SECOND AMENDED COMPLAINT
	)	
QUALCOMM INCORPORATED,	)	
	)	JURY TRIAL DEMANDED
Defendant.	)	

Plaintiff Broadcom Corporation ("Broadcom"), through its undersigned attorneys, by and for its Second Amended Complaint, upon personal knowledge as to its own acts, and on information and belief as to all others based upon its own and its attorneys' investigation, alleges as follows:

### **THE PARTIES**

1. Broadcom is a California corporation with its principal place of business in Irvine, California. Broadcom also operates a significant facility in Matawan, New Jersey, which is an important part of the Broadcom business at issue in this lawsuit. Defendant Qualcomm Incorporated ("Qualcomm") is a Delaware corporation with its principal place of business in San Diego, California. Qualcomm also transacts and is registered to do business in and is found within New Jersey, where Qualcomm has appointed an agent for service of process.

2. Broadcom is a supplier of semiconductors for wired and wireless broadband communications. Broadcom's products provide innovative solutions in a variety of areas, including digital cable, satellite and Internet set-top boxes, high-definition televisions, digital subscriber line modems, home and wireless networking, and cellular and terrestrial wireless communications. Broadcom has an extensive history of innovation in the area of semiconductors used for broadband communications.

3. Qualcomm has offices around the United States and the world, and operates several business units. Among others, Qualcomm licenses its intellectual property rights through a business unit called the "Technology Licensing Segment," or "QTL." Qualcomm sells chipsets through a business unit called the CDMA Technologies Segment, or "QCT." Qualcomm's QCT and QTL units are and have been extremely profitable. For example, in March 2005, Qualcomm reported that: QCT had more than \$3.1 billion in chipset sales in fiscal year 2004, with a 34% margin; and that QTL had more than \$1.3 billion in sales with a 90% margin.

### **NATURE OF THE ACTION**

4. Qualcomm has systematically undermined competition in markets for technology and integrated circuit chips used in mobile wireless devices and sought to undermine competition more broadly through its willful manipulation of various standard-setting processes. In doing so,

Qualcomm has violated federal antitrust and California's unfair competition laws, breached contracts and commitments, engaged in fraud, and tortiously interfered with Broadcom's prospective commercial advantage. Qualcomm has injured competition and Broadcom, and Broadcom brings this action to recover damages and enjoin Qualcomm's continuing abuses.

5. Standard-development organizations ("SDOs") establish standards for high-technology industries to ensure compatibility and interoperability. However, once adopted, a standard incorporating proprietary technologies creates the potential for opportunists to extract monopoly rents and insist on anticompetitive licensing terms. To address this hold-up risk, SDOs often require patent holders to disclose their essential intellectual property ("IP") and commit to license such essential IP on fair, reasonable, and non-discriminatory ("FRAND") terms.

Qualcomm, however, repeatedly has subverted the standard-setting process to suit Qualcomm's own narrow purposes, in a variety of ways, each of which result, after the standard is established, in Qualcomm asserting it owns essential intellectual property and demanding that its rivals and customers pay it exorbitant royalties and provide other concessions.

6. Qualcomm never intended to foster competition through standardization, as contemplated by the authorities that permit standardization, or to license its technology on FRAND terms. Qualcomm's FRAND commitments were and are false promises. Qualcomm promised to license on FRAND terms to obtain market power while intending to extract "whatever price the market would bear" for its technology after the standard was adopted and implemented. As such, Qualcomm has systematically sought to take advantage of the lock-in that occurs when a standard is adopted and implemented, and to discriminate in its licensing in favor of its own downstream products, all in violation of its FRAND commitments. Qualcomm has done so as part of a pattern and practice of evading the protections that SDOs put in place to prevent

participants from exploiting the potential for holdup that exists when a particular proprietary technology is chosen for inclusion in a standard.

7. As one example, in the establishment of a crucial standard for third-generation wireless networks for cell phones, called UMTS, Qualcomm made false commitments to license on FRAND terms. After the standard's adoption, Qualcomm has demanded unfair, unreasonable, and discriminatory royalties that not only break but belie its FRAND promises. Qualcomm has used its purportedly essential intellectual property not only to reap monopoly profits in the form of royalties and other concessions, but also to attempt to monopolize the market for chipsets for UMTS phones.

8. As described below, Qualcomm has engaged in a pattern and practice of anticompetitive conduct with respect to various standard-setting processes in addition to UMTS, including in the GSM/GPRS/EDGE, H.264, IEEE 802.20, and CDMA 2000-1xEVDO and -1xEVDV standards. With each of these, Qualcomm has engaged in conduct designed to undermine competition, including delayed disclosures of IP, refusals to license on FRAND terms, and the use of undisclosed consultants to manipulate standards proceedings. For GSM/GPRS/EDGE, Qualcomm delayed disclosure of its patents purportedly essential to those standards, engaged in offensive litigation designed to further frustrate development within those standards, and violated its FRAND commitments. Qualcomm similarly delayed disclosure of two patents purportedly essential to the H.264 standard, and then asserted meritless infringement claims against Broadcom to further undermine Broadcom's ability to compete with Qualcomm, and intentionally deceived the trial court in order to hide its conduct. It also refused to comply with its FRAND commitments with respect to those two patents. Qualcomm also effectively undermined standardization efforts in IEEE 802.20 and with respect to CDMA 2000-1xEVDV,

through vote-stacking, misuse of its market power over participants in the standard-setting process, and other misconduct designed to bias, prevent or delay the adoption of those standards. Qualcomm's conduct with respect to each of these standards, individually and collectively, affirms that Qualcomm has engaged in a willful campaign to manipulate and sabotage the standard-setting process.

### **JURISDICTION, VENUE AND COMMERCE**

9. The Court has jurisdiction over this action pursuant to Section 4 of the Sherman Act, 15 U.S.C. § 4, and 28 U.S.C. §§ 1331, 1337.

10. The Court has supplemental jurisdiction over the state law claims asserted in this action pursuant to 28 U.S.C. § 1367.

11. The conduct alleged herein has affected and is affecting a substantial volume of interstate and foreign commerce, including commerce in this District.

12. Venue is proper in this District under Section 12 of the Clayton Act, 15 U.S.C. § 22, and under 28 U.S.C. § 1391. Defendant Qualcomm transacts and is registered to do business in, resides in, and is found within this District. Qualcomm has also appointed an agent for service of process in New Jersey.

13. New Jersey is a center for other key players in the wireless industry. LG Electronics ("LGE") and Motorola, Inc. ("Motorola") – two of the major cell phone manufacturers, which Qualcomm has described as "major customers" – have substantial business operations in this District. LGE's North American headquarters is located in Englewood Cliffs, New Jersey, and Motorola has substantial operations in New Jersey, including facilities in South Plainfield, Glen Rock and Piscataway. Matsushita Electric Industrial Co., Ltd., another leading manufacturer of cell phones using the Panasonic brand name, has its principal North American subsidiary

(Panasonic Corporation of North America) headquartered in Secaucus, New Jersey. In addition, Verizon Wireless, the nation's largest CDMA carrier, is headquartered in Bedminster, New Jersey.

14. Moreover, numerous other businesses and persons affected by this action are located within this District. Millions of New Jersey consumers who have purchased or will purchase cell phones have been or will be injured by the higher prices, slower innovation, and reduced choices that have resulted and will result from Qualcomm's anticompetitive conduct.

### **THE STRUCTURE OF THE MOBILE WIRELESS INDUSTRY**

#### **A. MOBILE WIRELESS CARRIERS, MOBILE WIRELESS HANDSET MANUFACTURERS, AND CHIPSET MANUFACTURERS**

15. Mobile wireless carriers ("carriers") provide cell phone service to consumers. Carriers operate the mobile wireless systems that enable consumers to place and receive telephone calls, and send and receive data, on cell phones. Leading carriers in the United States include AT&T (formerly Cingular), T-Mobile USA, Inc., Verizon Wireless, and Sprint Corp.

16. A number of companies around the world manufacture mobile wireless handsets (also known as cell phones), and the manufacturers typically sell those phones to the carriers, which in turn arrange for sale of the cell phones to consumers. Cell phone manufacturers include Original Equipment Manufacturers ("OEMs"), which manufacture cell phones under their own names, as well as Original Design Manufacturers ("ODMs"), which manufacture cell phones for sale under an OEM's brand name, usually based on a design created by the OEM. Motorola and LGE are two leading cell phone OEMs.

17. Cell phones contain, among other components, one or more computer chipsets that deliver the cell phones' core ability to communicate with the wireless system. Such chipsets are sometimes referred to as application-specific integrated circuits, or "ASICs."

**B. THE ROLE OF SDOS AND STANDARDS**

18. Standards play a critical role in the development of technologies that affect virtually all aspects of modern life. Standards facilitate the adoption and advancement of technology and facilitate the development of products that can interoperate. Companies that produce products implementing a standard can make products by referencing only the standard, without the need to communicate separately with every other company with which their products may need to work. Companies producing products implementing a standard can therefore guarantee that their products will operate with products produced by other companies that also implement the standard. Interoperability enables multiple companies to develop products that compete more effectively with one another.

19. When participants in SDOs comply with the practices, policies, and procedures of the SDOs and do not abuse the standard-setting process, standard setting can have procompetitive effects. The adoption of standards can provide for interoperability, can improve quality, and can simplify product development.

20. Once a standard has been adopted, patents that are essential to that standard gain value as a result of the exclusion of alternative technologies that could otherwise have been used to achieve the same functions covered by such patents. The adoption of a patent holder's technology into a standard can enable the holders of essential patents, if not otherwise constrained, to extract monopoly rents (including in the form of royalty rates and other terms) from parties that want to produce products that implement the standard. Such companies can become "locked in" to a particular technology if, due to cost or other considerations, it is not practical to develop or switch to another technology, or if customers for their products (such as carriers) are locked into standardized technology and therefore have no practical choice other than to purchase standard-compliant equipment.



21. The adoption of a standard requiring the use of technology covered by a patent also confers upon that patent holder the ability, if not otherwise constrained, to capture for itself downstream markets or to shut down use of the standard entirely.

22. To prevent such abuse of the standard-setting process by participants, SDOs frequently adopt rules, policies, and/or procedures relating to participants' intellectual property rights ("IPR"). The rules, policies, and/or procedures of an SDO relating to IPR are known as the "IPR policies" of the SDO.

23. The IPR policies applicable to the standards at issue in this matter required participants to disclose IPR, such as patents or patent applications, they believe is relevant to the standard under consideration. Those policies also required that the standard be rewritten or withdrawn if a license for IPR that is essential or potentially essential to implementing the standard could not be obtained. Those policies further required participants having IPR they believe may be essential to the standard under consideration to commit to license that IPR on FRAND terms. In part to prevent undue influence over members' decisions regarding which technology to incorporate in a standard, IPR policies also typically required participants to disclose their affiliations with any company or organization that has a financial interest in the technology under consideration (including potential IPR).

24. Indeed, standards are especially critical to and prevalent in the mobile wireless industry, and standards have played an important role in the adoption of mobile wireless technology. Standards are required to ensure that a carrier's wireless system can seamlessly interface and function properly with cell phones made by various manufacturers. Regardless of which manufacturer makes a cell phone, which chipset maker supplies the components for the cell phone, and which company manufactures the service provider's infrastructure, each cellular



phone must be capable of interfacing with all of the other components in a carrier's wireless system.

25. Several SDOs have worked with the wireless industry to develop wireless communications standards.

26. The International Telecommunications Union ("ITU") is the central telecommunications SDO worldwide. The ITU is an international organization comprised of governments and firms in the private sector that coordinates the operation of telecommunications systems and services and advances the development of communications technology. The ITU's standardization activities are designed to foster the growth of new technologies, such as mobile telephony and the Internet, as well as the emerging global information infrastructure that handles a mix of voice, data and multimedia signals. The ITU develops internationally agreed-upon technical and operating standards to foster interconnection of the world's communications systems.

27. The Telecommunications Industry Association ("TIA") is the leading U.S.-based SDO for the communications and information technology industry. The TIA is comprised of member companies that manufacture or supply products and services used in global communications. The Alliance of Telecommunications Industry Solutions ("ATIS") is another SDO based in the United States. Other SDOs that operate around the world in this area include the Association of Radio Industries and Businesses ("ARIB") of Japan, the Telecommunications Technology Committee ("TTC") of Japan, the China Communications Standards Association ("CCSA"), and the Telecommunications Technology Association ("TTA") of Korea.

28. The American National Standards Institute ("ANSI") is a private nonprofit organization that oversees the development of voluntary consensus standards, and is the U.S. representative to

the International Standards Organization (“ISO”)/International Electrotechnical Commission (“IEC”).

29. The European Telecommunications Standards Institute (“ETSI”) is an independent, non-profit SDO founded in 1988 and headquartered in France. The mission of ETSI is to produce global communications standards.

30. ETSI led and continues to lead the standardization process for a family of standards referred to as Global System for Mobility (“GSM”), GSM Packet Radio Service (“GPRS”), Enhanced Data Rates for GSM Evolution (“EDGE”), and Universal Mobile Telecommunications System (“UMTS”).

31. Membership in ETSI is open to any company or organization, although full membership in ETSI is limited to companies or organizations located in certain geographic areas. Today, ETSI has more than 600 members, including many of the world’s leading producers of technology for mobile communications.

32. Members of ETSI develop, evaluate, and approve ETSI’s standards. Members of ETSI directly influence the technical content of ETSI standards.

33. In the past several years, standards bodies specific to wireless technology standards have developed. The Third Generation Partnership Project (“3GPP”) has focused on the evolution of GSM and UMTS technology, and the Third Generation Partnership Project 2 (“3GPP2”) has focused on the evolution of Code Division Multiple Access (“CDMA”) technology.

34. Cell phones have developed through several “generations” in response to demand for mobile wireless systems that carry data at faster rates and voice traffic at higher capacity. Wireless carriers increasingly have been focused on providing wireless data services through mobile phones, including wireless access to the Internet, multimedia entertainment, broadcast

television and position location services. The earliest wireless systems, which included analog technology with voice transmission only, are typically referred to as first generation or “1G.” 1G technology was characterized by inherent capacity limitations, minimal data transfer capabilities, low security, inconsistent service levels, and significant power consumption.

35. The limitations of analog technology drove the development of a second generation of digital-based technologies. Second generation, or “2G,” digital technology provided significantly enhanced efficiency through greatly increased voice capacity compared to analog systems. Second generation technologies also enabled wireless carriers to begin to offer numerous enhanced services, including paging, e-mail connections to computer networks, greater privacy, and greater fraud protection.

36. The leading 2G cell phone technologies are based on GSM and CDMA technologies. In the United States, AT&T and T-Mobile (among others) use GSM networks, while Verizon Wireless and Sprint (among others) use CDMA networks. The technologies are incompatible; a GSM phone will not work on a CDMA network and vice versa.

37. The 2G standards have been supplemented by evolutionary improvements and advancements that permit greater data rates and increased voice capacity. Many GSM carriers have adopted or are adopting technologies known as GPRS and EDGE, which are sometimes referred to as “2.5G” technologies. Similarly, CDMA carriers have moved from a 2G standard called “cdmaOne,” to a newer IS-2000 standard, referred to as CDMA2000, the first iteration of which is another “2.5G” technology. As with the basic 2G standards, the 2.5G variants of GSM and CDMA technologies are incompatible with one another.

38. As demand for wireless systems that carry both data at faster speeds and voice at higher capacity has increased significantly, third-generation or “3G” wireless standards have been

proposed and adopted by international SDOs. A technology standard selected for 3G must efficiently support significantly increased data speeds and capacity over limited spectrum bandwidth, thereby enabling new and enhanced services and applications such as mobile e-commerce, broadcast television, position location, and mobile multimedia web browsing, including music and video downloads.

39. The UMTS standard was designed to permit economical transition from 2G GSM-based systems to a 3G standard, and is the logical evolutionary step for GSM carriers. The UMTS standard permits a dual-mode approach incorporating both the GSM family of standards (including GPRS and EDGE) as well as a set of 3G protocols based on Wideband Code Division Multiple Access ("WCDMA"). Despite the similarity in name, cell phones designed for WCDMA operation under the UMTS standards are not compatible with any of the CDMA standards, regardless of generation, and the 3G standard for CDMA networks is entirely separate from either UMTS or WCDMA.

40. The transition from 2G and 2.5G to 3G systems is requiring and will require carriers to make substantial investments. UMTS and 3G CDMA will be the significant 3G standards, with 3G CDMA as the upgrade path for current 2G CDMA carriers and UMTS as the upgrade path for current carriers of GSM and related technologies.

41. Cell phone technology will continue to develop during and after the move to 3G technology. Driven by demand for an increasing number of wireless applications and improved quality of existing applications, carriers wish to offer newer technologies that provide ever-increasing bandwidth supporting more advanced applications such as video and multimedia applications. The industry has already undertaken substantial development of technologies that may be implemented in beyond-third-generation ("B3G") and fourth-generation ("4G") mobile

wireless systems. SDOs working in the wireless area, including 3GPP and 3GPP2, have already begun work establishing B3G standards.

### **C. THE TECHNOLOGY MARKETS**

42. As a core part of the development of an industry standard, SDO participants seek to determine the appropriate technology to be used for each individual function required to practice the relevant standard. SDO participants evaluate and select among viable alternatives, competing technologies that are capable of performing each required function, and typically select among the alternatives on the basis of technical merit and intellectual property considerations, including whether the alternative includes proprietary technology and whether and on what terms such proprietary technology is available. Prior to adoption of the standard, there are generally multiple alternative technology solutions competing to perform the functionality at issue.

43. Once SDO participants select a technology to perform a particular function needed to practice a standard, all alternative technological solutions for that function are excluded from use in connection with that standard. Thus, the selection of a particular technology in the standard development process reduces to a single option the technology to perform each function necessary to practice the standard. If the chosen technology is essential to practice the standard and is covered by patents, then the owner of such essential patent rights becomes the sole supplier of the technology needed for the particular function incorporated in the standard. This is true for each function comprising the standard for which patented technology was selected.

44. Because each of the mobile wireless standards specifies a set of distinct technologies to perform the various functions within the standard, once a standard is adopted there are, by definition, no substitutes for the standardized technologies on which each particular standard is

based. For instance, if a manufacturer wishes to produce products, such as chipsets, that conform to the UMTS standard, it cannot do so without using the technology that has been made essential to that standard. The same holds true for essential GSM technologies, GPRS technologies, EDGE technologies, and H.264 technologies.

45. Before a standard is adopted, all of the alternative technologies to perform each particular function within the standard compete in a relevant product market consisting of all technologies capable of performing that function. These products markets are collectively referred to for a particular standard as “technology markets.” Because of the global nature of the products at issue in this case, the geographic scope of the technology markets is worldwide.

46. Qualcomm claims to own patents essential to practice the technologies that are used for certain individual functions required to practice the UMTS standard, the GSM standard, the GPRS standard, the EDGE standard, and the H.264 standard. As a result, Qualcomm claims monopoly positions in each technology market for which Qualcomm’s technology was adopted.

47. Because Qualcomm claims patents on technologies incorporated in the relevant standards, its claimed monopoly positions in the corresponding technology markets are protected by high barriers to competitive entry. Among other things, each technology is locked into the standard as the only way to provide the particular functionality, and any solution based on the standardized technology will therefore implicate those patent rights. As such, by definition, there are no substitutes for the standardized technology on which the family of patents read; the standard cannot be practiced without using technology based on the essential patents.

48. Accordingly, with respect to each technology that is needed to perform a particular functionality provided in the UMTS standard on which each purportedly essential Qualcomm patent reads, Qualcomm has obtained a monopoly in a relevant product market, collectively

referred to herein as the WCDMA technology markets. In the same way, the technology on which each purportedly essential Qualcomm patent reads for the GSM standard, the GPRS standard, the EDGE standard, and the H.264 standard (*i.e.*, the functionality that each such patent provides in the particular standard) constitutes a relevant product market, collectively referred to herein as the Qualcomm GSM technology markets, the Qualcomm GPRS technology markets, the Qualcomm EDGE technology markets, and the Qualcomm H.264 technology markets, respectively.

49. By their nature, the geographic scope of the various technology markets alleged herein is worldwide.

#### **D. THE CHIPSET MARKETS**

50. Each type of wireless system (*e.g.*, GSM, GPRS, EDGE, 2G CDMA, 2.5G CDMA, 3G CDMA, and UMTS) has unique features and technology, and thus neither the systems, nor the phones used for each system, are interchangeable or substitutes. For a wireless service carrier to develop any one of those systems requires billions of dollars of investments in infrastructure. Thus, once a carrier's initial decision to install a system has been made, the sunk investment in that system, and the costs that would be incurred to establish a different system, make it virtually impossible to switch to a different technology.

51. At this point few, if any, new wireless networks will be built from scratch, particularly in the United States. Even for new networks, limited and costly information has prevented carriers from taking into full account the long-term costs of operating a network, including the costs of chipsets for cell phones. As the Chairman and CEO of Qualcomm stated in 2000: "If you look at cdmaOne operators, it's certainly more economical to go to cdma2000 because of the way the system is designed." By making the transition to the next generation of the technology that a carrier has already selected – whether CDMA or GSM for 2G services – the carrier can follow a



relatively lower cost evolutionary path compared to the generally insurmountable expense entailed in switching between technologies.

52. At the same time, only phones with the appropriate technology will work on a particular mobile wireless network. Similarly, the chipsets that operate cell phones must conform to the technology of the system for which the phone is being manufactured. For example, only 3G CDMA chipsets can be used in a 3G CDMA phone; only GSM chipsets can be used in a GSM phone; and only UMTS chipsets can be used in a UMTS phone. None of the chipsets is either interchangeable with, or a substitute for, another.

53. While the investment in upgrading from one generation of CDMA to another is less than the investment and time required to switch from one technology (such as CDMA) to another (such as GSM), distinct demand and different pricing for each generation of chipsets means that chipsets for one generation are not economic substitutes for chipsets from another generation, and it is therefore appropriate to define separate product markets for each chipset generation.

54. As used herein, “xG CDMA chipset markets” means the markets for the sale of the chipsets that provide the core communications functions for the particular generation of CDMA-based cell phones. The geographic scope of each of the CDMA chipset markets is worldwide.

55. Similarly, UMTS chipsets are in a separate product market from the chipsets for GSM, CDMA and other cellular phone technologies. The geographic scope of the market for UMTS chipsets is worldwide.

#### **QUALCOMM’S MONOPOLIZATION OF THE CDMA CHIPSET MARKETS**

56. Through a variety of anticompetitive means, Qualcomm has monopolized the CDMA chipset markets, excluding virtually all competitors. This conduct both has paved the way for Qualcomm’s attempt to monopolize the UMTS chipset market by giving Qualcomm power over

manufacturers of UMTS cell phones (most of which also produce CDMA cell phones) and demonstrates how Qualcomm will accomplish the same monopoly result in UMTS chipsets.

**A. QUALCOMM HAS OBTAINED AND MAINTAINED MONOPOLY POWER IN THE CDMA CHIPSET MARKETS**

57. By its own statements, Qualcomm holds more than 1400 patents relating to CDMA technology and components, including the majority of the patents declared “essential” for the various generations of CDMA. According to Qualcomm, the CDMA standards and the UMTS standard cannot be practiced without using Qualcomm’s patented technology. As such, and based on Qualcomm’s own representation, there are no substitutes for the technology and thus Qualcomm holds monopoly power in each of the CDMA technology markets for functionalities purportedly covered by Qualcomm’s patents.

58. Qualcomm has used that power over CDMA technology to obtain and protect monopoly power in the various generations of CDMA chipset markets. According to Qualcomm’s public statements, through fiscal year 2005, Qualcomm had shipped more than 400 million of its CDMA chipsets worldwide. Qualcomm sells approximately 90% of each generation of the world’s CDMA chipsets.

59. Industry analysts also place Qualcomm’s market share in the CDMA chipset markets at 90% or more. For example, market research firm iSuppli Corporation reported that in 2003, Qualcomm’s CDMA chipset revenues were approximately \$1.7 billion out of a total of \$1.87 billion for the industry.

60. According to industry analysts, Qualcomm has more than a 90% share of each of the CDMA chipset markets. For example, market research firm Forward Concepts reported that in 2006, the latest year for which Forward Concepts has released data, Qualcomm provided 88% of

all CDMA2000-1xRTT (2.5G) and CDMA2000-1xEVDO (3G) chipsets, with Nokia providing (to itself) 9% based on a custom design not available on the open market.

61. Qualcomm's monopoly power in the sale of CDMA chipsets has allowed it to raise prices and restrict output. Qualcomm has charged extremely high prices for CDMA chipsets – on the order of double the price of GSM chipsets – that are not justified by production costs, by product functionality, or by quality. Both Qualcomm's own public statements and reports from industry analysts and media demonstrate that the supply of CDMA chipsets is below levels that would exist in a competitive market. Indeed, over time Qualcomm has recurrently noted capacity and supply shortages, in each instance suggesting that the problems would be solved in short order.

For example:

- In its January 26, 2001 10-Q filing with the SEC, Qualcomm stated that “[t]he Company anticipates shipments in the second quarter of fiscal 2001 to be constrained by a capacity limitation at one of its suppliers. The Company expects the supply constraint to be substantially resolved by the third quarter of fiscal 2001.”
- On April 8, 2002, a trade publication reported that “[i]ndustry analysts have predicted that a shortage of devices would slow the uptake of next-generation services, even as wireless operators began to upgrade their networks on the CDMA2000 or W-CDMA migration paths to third-generation capabilities. San Diego-based Qualcomm, which owns patents for all CDMA device and network technology, said it corrected the problem and is ‘shipping large production volumes’ of 1X chipsets worldwide.”
- On July 23, 2003, Qualcomm's Executive Vice President stated that “[a]t this time we believe carry [sic] inventories are largely in line with what CDMA carriers consider normal inventory, and in India shipments were recently being expedited to avert shortages.”
- In a news report dated January 22, 2004, Qualcomm's Chief Operating Officer was quoted as saying: “In India, for instance, they're complaining that they couldn't get phones and they could've grown faster. I certainly don't expect to see shortages for very long.”
- On April 22, 2004, Qualcomm's President was quoted as describing the chipset shortage situation as “very much a supply limited market” and stating that a wireless carrier had been “constrained by the number of phones they can get.”

- On May 13, 2004, Qualcomm's Executive Vice President stated on an investor teleconference that, "As you know we've had some shortages in meeting specific 51 and 5500 chipset demand." The same representative stated that, "There will be some shortage in one or two parts going forward but very small shortages we expect. So we will have a future strategy, which is in much better alignment."
- In its July 23, 2004 10-Q filing, Qualcomm stated that its chipset business "continued to experience supply constraints which resulted in our inability to meet certain customer demands" and that "we expect recent channel inventory shortages of integrated circuits to be alleviated in the future."
- On October 21, 2004, the Reuters news service reported that, according to Qualcomm's Chief Financial Officer William Keitel, "Qualcomm has resolved most of its supply issues, but is still producing some chips used for transmitting and receiving calls to mobile phones too slowly. 'We'll have it resolved by the end of the first calendar quarter,' Keitel said in an interview with Reuters. 'Our window on when we expect to be back in balance has been moving out because demand has continued to increase.' . . . Keitel said the shortage relates to radio chips in Qualcomm's 6000 series product range but did not name specific products."

As these statements illustrate, Qualcomm has repeatedly demonstrated that it possesses the power to control the output of CDMA chipsets.

62. Qualcomm's monopoly position is protected by high barriers to entry. Qualcomm has admitted that "a company seeking to develop, manufacture and/or sell products that use CDMA technology will require a license" from it, and regularly states that it is "widely recognized" that its intellectual property is "essential for the development, manufacture and sale of products implementing" CDMA. The technical complexity and Qualcomm's control of essential patents make potential entrants dependent on Qualcomm for entry into the CDMA chipset markets.

63. Entry into the CDMA chipset business has been limited. Only a few firms – such as Texas Instruments Incorporated, PrairieComm Incorporated, VIA Telecom, Inc., Eonex Technologies, Inc., and (for its own internal use) Samsung Electronics – have entered the CDMA chipset business, and these firms have not achieved commercial success on any significant scale. Intel Corporation, a leader in semiconductor manufacturing and technology with substantial

assets, attempted to develop a CDMA chipset business, but exited when it failed to achieve commercial success.

**B. QUALCOMM HAS OBTAINED AND PROTECTED ITS MONOPOLY POWER WITH A PATTERN OF ANTICOMPETITIVE CONDUCT**

64. Qualcomm's CDMA monopolies are not the result of superior business acumen or simple good fortune. Rather, Qualcomm's durable monopoly position in the CDMA markets has resulted from a continuing course of exclusionary, anticompetitive conduct.

65. For example, Qualcomm has used its power over CDMA chipset supply to discipline customers and exclude competitors. As discussed above, Qualcomm's CDMA chipset customers (cell phone manufacturers) have frequently complained, and Qualcomm has repeatedly admitted in public statements, that the supply of Qualcomm's chipsets has not kept pace with demand.

66. The constant threat of a supply shortage increases Qualcomm's leverage with manufacturers because Qualcomm's anticompetitive use of its monopoly has resulted in the virtual exclusion of all competitors. As explained in a report from the industry news source Telecom Asia:

These companies have had to live with the shortages since Qualcomm is the only CDMA chipset supplier in Korea, although it subcontracts manufacturing to IBM and two Taiwanese companies. Many firms hesitate to complain as they're concerned about disruptions in their already reduced orders.

67. Competition among cell phone manufacturers is fierce. Absent adequate supplies of chipsets, a manufacturer may be unable to meet critical obligations to deliver cell phones to carrier customers. Accordingly, the allocation of scarce chipsets, particularly at high-demand times such as during manufacturing for the Christmas shopping season, is vital to cell phone manufacturers. Qualcomm has frequently used distribution of limited supplies of chipsets to favor certain customers. For example, in early 2004, news reports explained that Korean cell phone manufacturers were suffering from a CDMA chipset shortage, and that Qualcomm was

providing only 70 to 80 percent of the chipsets that certain customers had ordered, and other customers were receiving only half of the chipsets they had ordered.

68. Qualcomm wields its power over the allocation of scarce chipsets as a tool to threaten and discipline cell phone manufacturers which otherwise would do business with competitors. For example, Qualcomm has threatened manufacturers with the loss of important benefits such as favorable lead times, free reference designs and other design work, training, and software, if these manufacturers purchase chipsets from a competitor. Similarly, as discussed below, Qualcomm has threatened manufacturers with supply cutbacks or price increases if these manufacturers support standard development that Qualcomm does not favor. As one example of the fear that Qualcomm's conduct has engendered, a representative of a Korean handset manufacturer was anonymously quoted in the Korea Times as saying, "A bigger problem is nobody can file a complaint to Qualcomm. Who would like to run the risk of being excluded from the customer list of Qualcomm, the monopolistic player?"

69. As another example of Qualcomm's anticompetitive conduct, in at least some manufacturer licenses Qualcomm substantially reduces royalty rates when a licensee agrees to purchase Qualcomm chipsets exclusively. As Qualcomm has admitted, its patent licensing agreements with Chinese cell phone manufacturers are expressly discriminatory and explicitly linked to those manufacturers' use of Qualcomm chipsets. First, if the Chinese manufacturers use non-Qualcomm chipsets, they must pay Qualcomm more than twice the royalty that they would pay if they used Qualcomm chipsets. In addition, the agreements provide that the royalty rate is dependent on whether the cell phone is sold inside or outside of China. If a cell phone is sold outside China, the manufacturer is subject to a significantly higher royalty rate. And, to get



the lower rate within China, the Chinese manufacturer must agree not to deal with a competitor.

As Qualcomm has publicly summarized:

The royalty rates provided to certain Chinese manufacturers for products manufactured and sold in China for use in China are more favorable than our standard rates. However, in order to benefit from these more favorable rates in China, the Chinese manufacturer must provide substantial, additional value to QUALCOMM, including, among other things, (i) paying, for a period of time, a royalty on sales outside of China at a rate higher than our standard rate and (ii) *committing to use QUALCOMM's ASICs in their worldwide sales of CDMA subscriber units and infrastructure.* (Emphasis added.)

**QUALCOMM IS REPEATING ITS PATTERN OF ANTICOMPETITIVE CONDUCT TO MONOPOLIZE THE WCDMA TECHNOLOGY MARKETS AND ATTEMPT TO MONOPOLIZE THE UMTS CHIPSET MARKET**

70. Successful in its efforts to obtain and maintain its CDMA chipset monopolies, Qualcomm now has its eyes set on the UMTS chipset market. As set forth below, Qualcomm has unlawfully obtained a monopoly in the WCDMA technology markets and, using a broad pattern of conduct, including use of its monopoly power over cell phone manufacturers active in the CDMA standards and UMTS, Qualcomm has attempted to exclude and disadvantage competitors in order to obtain a monopoly in the UMTS chipset market.

**A. QUALCOMM'S UNLAWFUL MONOPOLIZATION OF THE WCDMA TECHNOLOGY MARKETS**

71. In the late 1990s, ETSI began considering candidate technologies for the UMTS standard that would have worldwide application. ETSI and its members considered a number of solutions, including, among others, WCDMA, Wideband Time Division Multiple Access ("WTDMA"), Wideband TDMA/CDMA ("TD-CDMA"), and Orthogonal Frequency Division Multiple Access ("OFDMA").

72. Qualcomm has been and is a full member of ETSI through its affiliates, Qualcomm Israel Ltd., Qualcomm Europe S.A.R.L., and Qualcomm UK Ltd.

73. Qualcomm, through its affiliates, joined ETSI in April 1997.



74. Qualcomm has participated and continues to participate today in ETSI's development of communications standards, including GSM, GPRS, EDGE, and UMTS.

75. ETSI's Statutes and Rules of Procedure govern the organization and operation of ETSI.

76. The Statutes and Rules of Procedure of ETSI are applicable to all ETSI members, and ETSI members are required to commit themselves to compliance with the Statutes and Rules of Procedure as a condition of membership.

77. The Statutes and Rules of Procedure of ETSI create a contractual obligation between ETSI and its members and participants, with those that wish to practice the standard, such as Broadcom in the case of the standards at issue here, as first- or third-party beneficiaries. In addition, the policies and practices of ETSI give rise to implied contractual obligations for ETSI members and participants, and for third parties that seek to practice the standard.

78. Annex 6 of the ETSI Rules of Procedure describes the ETSI Intellectual Property Rights Policy.

79. The ETSI Intellectual Property Rights Policy and requires all ETSI members to make timely disclosures of essential IPR.

80. The version of Section 4.1 of the ETSI Intellectual Property Rights Policy in effect at the relevant time stated, in relevant part:

Each MEMBER shall use its reasonable endeavors to timely inform ETSI of ESSENTIAL IPRs it becomes aware of.

81. As participants in ETSI standards development activities understood, the ETSI Intellectual Property Rights Policy required disclosure of all IPR that participants believed might be essential to standards under consideration.

82. ETSI maintains a publicly accessible database of all IPR disclosures made by ETSI members.

83. ETSI's IPR disclosure policy was and is intended to benefit all ETSI members and participants, as well as other third parties that implement a standard developed by ETSI.

84. Before ETSI adopts a standard that includes IPR essential to practicing that standard, Section 6.1 of the ETSI Intellectual Property Rights Policy requires the owner of that IPR to make:

[A]n undertaking in writing that it is prepared to grant irrevocable licences on fair, reasonable and non discriminatory terms and conditions under such IPR to at least the following extent:

- MANUFACTURE, including the right to make or have made customized components and sub-systems to the licensee's own design for use in MANUFACTURE,
- sell, lease, or otherwise dispose of EQUIPMENT so MANUFACTURED,
- repair, use, or operate EQUIPMENT, and
- use METHODS.

The above undertaking may be made subject to the condition that those who seek licences agree to reciprocate.

85. Qualcomm has expressly agreed and contracted to license patents that it claims are essential to practicing ETSI standards on terms and conditions that comply with the licensing obligation of Section 6.1 of the ETSI Intellectual Property Rights Policy.

86. As a result of its membership and participation in ETSI, Qualcomm entered into an actual and/or implied contract with ETSI. Qualcomm was and is bound by the ETSI Statutes and Rules of Procedure, including the ETSI Intellectual Property Rights Policy. Qualcomm is also bound by its agreement to offer FRAND licenses in accordance with ETSI's IPR policy.

87. During the development of the UMTS standard, concept groups within ETSI were formed to test and evaluate technology alternatives. Each group produced a technical proposal demonstrating how the relevant technology complied with the technical requirements established by ETSI for the 3G standard, and none was considered superior. The committee chairman in

ETSI reported in December 1997 that “when the uncertainty on simulations and the differences in the assumptions made in order to evaluate that performance of the concepts are considered SMG2 [Special Mobile Group 2] have not be[en] able to conclude that any single one of these concept[s] provides a better solution than the other concepts. . . . Therefore SMG2 request SMG to decide on the basis of which of the concepts . . . SMG2 shall continue the work on the UMTS Terrestrial Radio Access.”

88. In the late 1990s, Qualcomm made proposals in an attempt to steer the UMTS standard then under development toward purportedly patented Qualcomm technologies and away from alternative technologies that were at least as effective.

89. Around this time and in order to secure the inclusion of the WCDMA technology to which Qualcomm purports to hold essential patents included in the UMTS standard, Qualcomm made repeated and express written representations to SDOs, including the ITU, ETSI, and 3GPP, that it would license any of its essential patents on FRAND terms.

90. Qualcomm’s false commitments to FRAND were intended to, and did, secure incorporation of Qualcomm’s technology into the UMTS standard, including the selection of technology to which Qualcomm claims to have patents as essential elements of the UMTS standard. In reliance on Qualcomm’s FRAND assurances, SDOs around the world, including ETSI, included Qualcomm’s technology in the UMTS standard. Wireless service carriers in turn invested billions of dollars in building and improving wireless networks utilizing WCDMA technology.

91. By definition, according to Qualcomm’s express statements to SDOs, any business that manufactured or sold a UMTS-compliant product would infringe Qualcomm’s patents unless it obtained a license for which Qualcomm now asserts it can charge whatever monopolistic price it

chooses. Thus, by Qualcomm's statements, Qualcomm has monopoly power in the WCDMA technology markets.

92. The first version of UMTS was released in December 1999.

93. It was not until October 19, 2001 that Qualcomm disclosed any patents to ETSI as being purportedly essential to the UMTS standard. By that point, ETSI had already released two versions of the UMTS standard.

94. By virtue of its participation in ETSI, Qualcomm had an obligation to disclose earlier than October 19, 2001, all patents that it now contends or has ever contended are essential to UMTS. Specifically, Qualcomm had an obligation to disclose the patents that it now contends or has ever contended are essential to UMTS before the aspects of UMTS to which those patents are purportedly essential were selected by ETSI. Qualcomm failed to meet this obligation.

95. In its October 19, 2001 disclosure, Qualcomm identified 161 patents or applications as purportedly essential to UMTS.

96. Because Qualcomm failed to disclose its patents until years after ETSI adopted the UMTS standard, the participants in the ETSI standard-setting process were unable to consider the impact of Qualcomm's asserted patent rights in formulating the UMTS standard, and Qualcomm was able unfairly and fraudulently to cause ETSI to adopt standards incorporating technology that Qualcomm now claims reads on its patents.

97. Qualcomm's disclosure of patents purportedly essential to the UMTS standard was untimely and in violation of the policies and practices of ETSI, including ETSI's Intellectual Property Rights Policy.

98. Qualcomm's nondisclosure was deliberate and intentional.

**B. QUALCOMM'S REFUSAL TO LICENSE ON FRAND TERMS**

99. Broadcom develops, markets, and sells microchips, chipsets, and software for mobile wireless devices complying with the UMTS standard.

100. After Qualcomm had joined and begun participating in ETSI, Broadcom made substantial investments to develop and market UMTS products, including the acquisition of Zyray Wireless, Inc. in June 2004.

101. In April 2006, Broadcom, following its acquisition of Zyray Wireless, Inc., introduced its first UMTS-compliant chip for the U.S. market.

102. Broadcom continues today to develop, market, and sell microchips, chipsets, and software for mobile wireless devices complying with the UMTS standard.

103. Qualcomm has asserted to companies, including Broadcom and its customers, that products implementing the UMTS standard require a license to Qualcomm's purportedly essential patents.

104. Qualcomm has also asserted to companies, including Broadcom and its customers, that Broadcom does not have a license from Qualcomm to implement the UMTS standard.

105. Qualcomm's claims that Broadcom requires a license to Qualcomm's purported UMTS patents have injured and continue to injure Broadcom, including by interfering with Broadcom's ability to develop products and make sales and by reducing Broadcom's profits.

106. Qualcomm's refusal to honor its commitments to ETSI to license its purportedly essential IPR on FRAND terms and conditions and in accordance with the other terms of the ETSI IPR policies has injured and continues to injure Broadcom, including by interfering with Broadcom's ability to develop and market semiconductors for UMTS-compliant mobile wireless devices.

107. Indeed, Qualcomm repeatedly has breached its FRAND commitments. Qualcomm's licensing practices have been neither fair, nor reasonable, nor non-discriminatory. Qualcomm

has engaged in a cumulative pattern of unlawful licensing and marketing practices in an attempt to expand its CDMA chipset and WCDMA technology monopolies into the UMTS chipset market. These practices are wholly inconsistent with Qualcomm's commitments to SDOs that Qualcomm would license its purportedly essential intellectual property on FRAND terms.

108. Broadcom approached Qualcomm to obtain a license to Qualcomm's so-called essential WCDMA patents on the FRAND terms that Qualcomm had committed to provide. In willful disregard of the commitments it made to incorporate its technology into the UMTS standard, Qualcomm has refused to license any of its essential WCDMA patents on FRAND terms, and has demanded of Broadcom terms that are unfair, discriminatory, and patently unreasonable.

109. Broadcom does not disclose the specifics of those terms here, because as part of Qualcomm's efforts to impose non-FRAND terms on licensees, Qualcomm insists that parties seeking to negotiate a license enter into non-disclosure agreements that prevent disclosure of certain information relating to the negotiations. Qualcomm has enforced such non-disclosure agreements in an extremely aggressive manner, including bringing and widely publicizing a meritless lawsuit attempting to strip a chipset competitor of its license to manufacture CDMA and UMTS chipsets based on the competitor's alleged violations of a non-disclosure agreement. To the extent Qualcomm itself has not publicly disclosed its various licensing requirements, Qualcomm's NDA practices limit Broadcom's willingness and ability to describe in detail the unfair, discriminatory, and unreasonable terms to which Qualcomm has demanded Broadcom and other manufacturers of UMTS chipsets agree.

*(i) Demand for Royalties on Unpatented Components*

110. In contradiction of its FRAND commitments, Qualcomm seeks to collect royalties on parts of the UMTS chipset beyond Qualcomm's patented technology. Such a structure

discriminates against manufacturers such as Broadcom that plan to provide enhanced functionality on their UMTS chipsets.

111. Qualcomm's insistence on collecting royalties on this basis is unreasonable, unnecessary, and anticompetitive in that it decreases the economic incentives of Qualcomm's licensees to innovate in ways that improve and add functionality to their UMTS chipsets. Both alone and in combination with Qualcomm's other anticompetitive conduct, it undermines UMTS innovation and competition.

***(ii) Demand for Non-Reciprocal Patent Rights***

112. Qualcomm also violates its FRAND obligations by requiring that its UMTS licensees grant back to Qualcomm licenses that are substantially broader than the licenses that Qualcomm will provide. This overly broad and asymmetrical grant-back requirement is discriminatory in that it affects licensees with extensive relevant patent portfolios (such as Broadcom) more than it affects those without such portfolios. Furthermore, under its FRAND obligations, Qualcomm may demand a grant-back only to the same set of rights that it licenses to the licensee; it may not insist on rights that are not reciprocal. Qualcomm's insistence on an asymmetrical grant-back has the additional anticompetitive effect of discouraging innovation by Qualcomm's licensee-competitors and thus, by itself and together with Qualcomm's other anticompetitive conduct, undermines competition for UMTS chipsets and technology.

***(iii) Demand to Collect Double Royalties***

113. Despite Qualcomm's FRAND commitments – unlike other owners of patents deemed essential to the CDMA or WCDMA standards – Qualcomm also insists on licenses at both the component level and the cell phone level. Qualcomm charges some or all UMTS cell phone manufacturers a substantial royalty rate on the sales price of each cell phone sold, including the



value of the UMTS chipset within the handset. In addition, Qualcomm charges some UMTS chipset manufacturers, and has insisted on charging, a substantial additional royalty on the sales price of each UMTS chipset sold.

114. Qualcomm enforces its double royalty by demanding that its chipset manufacturer licensees agree not to sell their UMTS chipsets to non-Qualcomm licensed cell phone manufacturers, as well as by prohibiting handset licensees from using chipsets manufactured and generally sold by unlicensed manufacturers. Qualcomm's royalty scheme enables it inappropriately to charge twice for the same licensing right.

115. UMTS cell phone manufacturers pay a royalty to Qualcomm for rights including the right to make (or have made) and use UMTS chipsets in UMTS cell phones to be sold by the licensee. Cell phone manufacturer licensees pay the same royalty rate per handset regardless of whether they make (or have made) their own customized UMTS chipsets or buy from a UMTS chipsets manufacturer that is licensed by Qualcomm. Thus, when a UMTS cell phone manufacturer buys a UMTS chipset from a Qualcomm licensee, both the handset manufacturer and the chipset manufacturer are paying a royalty to Qualcomm for the right to make the chipset. The cell phone manufacturer does not receive a reduction in its royalty payment if it purchases chipsets from a Qualcomm-licensed chipset manufacturer (to reflect the "make" right royalty payment already collected) – even though it does receive such a reduction, as discussed below, if it purchases chipsets from Qualcomm. By reaping a double royalty for the same right and by charging this double royalty to some but not all licensees, Qualcomm has violated its FRAND obligations.

116. In addition, by this practice Qualcomm effectively compels each customer to negotiate with Qualcomm for a separate license, even if that customer wants to purchase chipsets from a source other than Qualcomm. The division of license rights in this manner enables Qualcomm to

control or influence the transaction between its chipset competitors and their manufacturer customers, and to discriminate between customers on the basis of whether they use Qualcomm or non-Qualcomm chipsets.

117. Qualcomm has threatened UMTS cell phone manufacturers with, among other things, potential termination of their licenses, breach of contract lawsuits, and/or patent infringement lawsuits if they purchase UMTS chipsets from any company that does not have its own license from Qualcomm, including Broadcom. Qualcomm has made these threats notwithstanding its knowledge that at least some of those cell phone manufacturers have paid a royalty on UMTS chipsets and are licensed to sell UMTS cell phones incorporating UMTS chipsets.

118. Other parties with patents they have declared as essential to implementing WCDMA, including Nokia, Ericsson, InterDigital, and Samsung, among others, do not charge such double royalties. Rather, these companies seek only one royalty.

119. Qualcomm's efforts to collect double royalties violate its FRAND obligations not only because they are unfair and unreasonable, but also because they impose different royalties overall (for the same rights) depending on whether a UMTS cell phone manufacturer uses third party UMTS chipsets or produces chipsets itself.

120. As a cumulative consequence of this and Qualcomm's other anticompetitive conduct, Qualcomm has undermined the ability of independent UMTS chipset manufacturers such as Broadcom to compete against Qualcomm in the UMTS chipset market. This and Qualcomm's other conduct have undermined competition in the UMTS chipset market.

***(iv) Unreasonable Royalty Demands Contrary to FRAND Commitments***

121. Qualcomm's demands for unreasonable royalties are contrary to its obligation to license its WCDMA technology on FRAND terms. In addition to collecting a double royalty, as

discussed above, the royalty rates charged by Qualcomm to UMTS chipset manufacturers for its WCDMA technology are far greater than the rates charged by any other company proclaiming to be an essential WCDMA patent holder. Qualcomm also has publicly represented that it is charging the same royalty rates for licensing its WCDMA technology as it charges for licenses to its 3G CDMA technology, demonstrating again Qualcomm's ability unilaterally to set prices, despite the fact that its patents comprise a much smaller proportion of the UMTS standard than of the 3G CDMA technology standard. For example, at Qualcomm's Spring Analyst Meeting on May 5, 2005, Qualcomm then-President-elect Steve Altman stated that Qualcomm's licensees would be required to pay the same royalty rates regardless of whether any of its patents expire and regardless of the number or percentage of WCDMA essential patents held, provided that at least "one claim of one patent applies." Similarly, Qualcomm has rejected attempts by other WCDMA essential patent holders to set a government- or SDO-approved ceiling on the royalty rate at which all WCDMA technology for cell phones would be licensed in order to encourage adoption and proliferation of the technology.

122. In short, despite Qualcomm's commitments to various SDOs to license on FRAND terms, Qualcomm has never had any intention of applying a reasonable royalty rate. Qualcomm's patents add far less value to the UMTS standard than to the 3G CDMA standard, but Qualcomm charges the same license rate for both, which gives Qualcomm disproportionate ability to influence the cost of UMTS products.

**(v) *Demand for Anticompetitive Information Exchange***

123. Qualcomm has also insisted that it have the right to receive licensees' sensitive pricing information relating to UMTS chipsets, including information about sales where the licensee and Qualcomm were competing head-to-head. Such an anticompetitive information exchange would

discourage price competition and lacks any legitimate business justification. The effect of this anticompetitive information exchange requirement, along with Qualcomm's other conduct, is to prevent competition to the detriment of both would-be competitors such as Broadcom and consumers.

**C. QUALCOMM'S DISCRIMINATORY LINKAGE OF ITS PATENT LICENSES TO PURCHASE OF ITS UMTS CHIPSETS IN VIOLATION OF FRAND**

124. In addition to Qualcomm's demands that Broadcom enter into these non-FRAND terms, Qualcomm has also imposed non-FRAND terms on *other* WCDMA licensees, just as it has in the CDMA markets, and has used such terms to undermine chipset competition from competitors like Broadcom.

**(i) *Discrimination in WCDMA Patent Royalty Rates***

125. Qualcomm's patent licensing practices are designed to extend Qualcomm's monopoly position in WCDMA technology markets into the UMTS chipset market. In its licenses with cell phone manufacturers, Qualcomm has imposed discriminatory, onerous and unreasonable terms for the right to use Qualcomm's WCDMA patents. For example, Qualcomm has required manufacturer licensees to pay up-front multi-million dollar licensing fees, which it has occasionally waived, but *only* on a discriminatory basis – *i.e.*, if cell phone manufacturers agree to purchase Qualcomm chipsets exclusively – despite the fact that no legitimate relationship exists between licensing of cell phone technology and purchase of chipsets.

126. Qualcomm's royalty rate discrimination furthers no legitimate competitive interest or business need. Rather, Qualcomm's royalty rate discrimination, based on whether manufacturers use Qualcomm's chipsets, is intended to harm, and has the effect of harming, competition in the UMTS chipset market.

(ii) *Discrimination in WCDMA Patent Royalty Calculations: Price Netting and Other Practices*

127. Qualcomm has also engaged in “price netting,” another discriminatory and anticompetitive licensing practice. Qualcomm typically charges each cell phone manufacturer licensee a royalty for Qualcomm’s essential WCDMA patents based on the price of the entire cell phone, including the chipset, if the cell phone uses a chipset made by a competitor of Qualcomm. By contrast, Qualcomm permits cell phone manufacturers to deduct, or “net out,” the price that they pay Qualcomm for a Qualcomm chipset from the price of the cell phone before calculating the royalty amount. This explicitly ties the patent royalty (that is, the price paid for intellectual property controlled by Qualcomm) to the purchase of the UMTS chipset, the product as to which Broadcom and others have sought to compete.

128. Qualcomm’s price netting practices further no legitimate competitive interest or business need. Rather, these practices are intended to harm, and have the effect of harming, competition for the manufacture and sale of UMTS chipsets.

129. Another way in which Qualcomm discriminates in its licensing arrangements to distort competition in favor of its own UMTS chipsets is by using pass-through rights and non-assert agreements relating to third-party intellectual property that Qualcomm extracted from the third-party owners of that intellectual property as a condition of obtaining a license to Qualcomm’s essential technology in various standards. In extracting those rights, Qualcomm discriminated not only against purchasers of its rivals’ chipsets, but also against IP-rich licensees that are compelled to enter into such agreements.

130. As a result of Qualcomm’s royalty rate discrimination, price netting practices, and other discrimination, each non-Qualcomm chipset that a cell phone manufacturer purchases carries

with it a substantial price penalty. Price netting alone ensures that Broadcom would have to sell chipsets for less than Qualcomm's chipsets to be cost competitive.

131. The combined use of price netting and other discriminatory terms in Qualcomm's manufacturer agreements – even putting aside Qualcomm's other anticompetitive practices, as detailed above and below – put Broadcom and other competing chipset manufacturers at a significant disadvantage in pricing their UMTS chipsets to a cell phone manufacturer. Qualcomm's ability and its readiness to abuse its monopoly power over essential patents and other technology, combined with its other conduct, has made meaningful competition impossible.

**D. QUALCOMM'S ANTICOMPETITIVE EXCLUSIVITY PAYMENTS AND OTHER COERCIVE CONDUCT**

132. Qualcomm has also foreclosed competition for UMTS chipsets through the use of discounts, marketing incentives, and other rewards that are conditioned on use of Qualcomm UMTS chipsets. These incentives and concessions can amount to tens of millions of dollars for a single cell phone manufacturer licensee.

133. Qualcomm also has threatened supply disruption in CDMA chipsets to induce customers to purchase Qualcomm UMTS chipsets. This is a significant threat because, with Qualcomm having a monopoly in CDMA chipsets, many customers are dependent on Qualcomm for continued supply and reasonable pricing of CDMA chipsets, without which they cannot produce CDMA-compliant handsets.

134. The discounts and inducements offered by Qualcomm in exchange for use of Qualcomm chipsets are designed to defeat competition that would expand UMTS chipset output, improve quality, and reduce the price of UMTS cell phones. Qualcomm's licensing practices, individually and collectively, substantially raise competitors' costs of selling and marketing